

## **CHEM5302 Statistical Mechanics**

### **Course Description:**

In this advanced statistical mechanics class, the following topics will be discussed:

- (1) A brief review of the fundamental knowledge on statistical mechanics;
- (2) Statistical mechanics of classical particles;
- (3) Statistical mechanics of particles exhibiting quantum phenomena;
- (4) Diffusion models; and
- (5) Mean-field theory.

### **Main Course Outline (for reference only):**

1. Fundamentals
2. Statistical description of systems of non-interacting particles
3. Statistical description of systems of interacting particles
4. Diffusion models
5. Brief introduction to Monte Carlo (MC) and Molecular Dynamics (MD) simulations